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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,621	09/30/2004	Sven Preuss	F-8149	2252

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EXAMINER	
THOMAS, BRANDI N	

ART UNIT	PAPER NUMBER
2873	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

HA

Office Action Summary	Application No.	Applicant(s)	
	10/501,621	PREUSS, SVEN	
	Examiner	Art Unit	
	Brandi N. Thomas	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *4,8,10 and 11* is/are allowed.

6)☒ Claim(s) *1-3,5-7,9,13-15,19,20 and 22-28* is/are rejected.

7)☒ Claim(s) *16-18 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Detailed Action*.

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout for the specification of a utility application.

Content of Specification

(a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.

(b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

(c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.

(d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).

(e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

(f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

(2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

(g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.

(i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

(k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the

international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

(l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

2. The disclosure is objected to because of the following informalities: The specification is messing headings such as "Background of Invention".

Appropriate correction is required.

Response to Amendment

3. The amendment to the specification filed on 3/13/06 has been approved and entered.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 5-7, 9, 13-15, 19, 20, and 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al. (6407763 B1) in view of Zhang et al. (5461397).

Regarding claim 1, Yamaguchi et al. discloses, in figures 6 and 8-10, a method for light modulation, whereby intensity of the light is modified by means of electrically chargeable or

charged particles (18 and 20) (col. 16, lines 35-37 and col. 29, lines 31-34), wherein a gas or vacuum is provided in which said particles (18 and 20) are movable (col. 16, lines 35-37 and col. 29, lines 31-34), a granular gas is produced with said gas or vacuum between at least two electrodes (33) such that due to a temporally varied voltage applied to one of said electrodes (33) said electrically charged particles (18 and 20) present in an electrical field between said electrodes (33) are moved back and forth (col. 5, lines 6-13, col. 22, lines 34-42 and col. 27, lines 45-51) but does not specifically disclose the light for modulation is conducted through said granular gas. Zhang et al. discloses light for modulation is conducted through said granular gas (col. 2, line67 and col. 3, lines 1-11). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Yamaguchi et al. with the light modulation and gas of Zhang et al. for the purpose of emitting light through the channels and applying light to the front end unit for displaying images (col. 3, lines 9-11).

Regarding claim 2. Yamaguchi et al. discloses, in figures 6 and 8-10, a method for light modulation, wherein said light modulation is performed by changing said voltage applied to said electrodes (33) between a lower limit of voltage at which said particles are largely not moved or adhere in the area of one of said electrodes and an upper limit of voltage up to which said granular gas can be produced (col. 15, lines 19-28 and col. 22, lines 34-42).

Regarding claim 3, Yamaguchi et al. discloses, in figures 6 and 8-10, a method for light modulation, wherein said light modulation is performed depending on the frequency and/or amplitude of said voltage applied to said electrodes (col. 10, lines 41-49).

Regarding claim 5, Yamaguchi et al. discloses, in figures 6 and 8-10, a method for light modulation, wherein by means of a predetermined number of control electrodes (100) parts of

said irradiating light beams entering into areas allocated to said control electrodes (100) are modulated independent of one another (col. 29, lines 49-56) but does not specifically disclose the use of a light beam entering the areas allocated by the control electrodes. However it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention to include a light beam for the purpose of displaying an image.

Regarding claim 6, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, containing electrically chargeable or charged particles (18 and 20) that are movable between at least two electrodes (33) by means of which the intensity of the entering light can be modified (col. 16, lines 35-37 and col. 29, lines 31-34), wherein provided is a modulation cell (not numbered, area in which particles 18 and 20 are located) that is closed air-tight or vacuum-tight to the exterior and in which a gas or vacuum is present between at least two electrodes (33) (col. 5, lines 6-13 and col. 22, lines 34-42), and a distance between said electrodes (33) is provided such by applying a temporally varied voltage in an electrical field between said electrodes (33) (col. 27, lines 45-51) a granular gas is present mode of the electrically charged particles (18 and 20)) but does not specifically disclose the light for modulation is conducted through said granular gas. Zhang et al. discloses light for modulation is conducted through said granular gas (col. 2, line67 and col. 3, lines 1-11). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Yamaguchi et al. with the light modulation and gas of Zhang et al. for the purpose of emitting light through the channels and applying light to the front end unit for displaying images (col. 3, lines 9-11).

Regarding claim 7, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein at least one of said electrodes (33) has an insulating layer on a side thereof facing said other electrode (330 (col. 24, lines 54-57).

Regarding claim 9, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein a predetermined number of control electrodes (100) that can be actuated with voltage independently of one another are provided (col. 29, lines 49-56).

Regarding claim 13, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein each of said electrodes (33) has an insulating layer on a side thereof facing said other electrode (330 (col. 24, lines 54-57).

Regarding claim 14, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein opposing said control electrodes (100) is a single common control electrode (26) (col. 29, lines 56-64).

Regarding claim 15, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein each of said control electrodes (100) is coated with an electrically insulating layer on a side facing the are of said granular gas (330 (col. 24, lines 54-57).

Regarding claims 19 and 20, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation but does not specifically disclose wherein said light is illuminated into said granular gas with one intensity and said light exits said granular gas with a different intensity. Zhang et al. disclose wherein said light is illuminated into said granular gas with one intensity (before the charged particles are permitted into the channel) and said light exits said granular gas with a different intensity (after the charged particles are permitted into the channel) (col. 3, lines 3-11).

Regarding claims 22 and 23, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation wherein at least some of said electrodes face each other and are separated but does not specifically disclose wherein at least some of said electrodes face each other and are separated by a distance of 0.1 mm to 1 mm. It would have been obvious to modify the invention to separate the electrodes by a distance of 0.1 mm to 1 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (In re Aller, 105 USPQ 233). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention to separate the electrodes by a distance of 0.1 mm to 1 mm for the purpose of modulating the light between the electrodes.

Regarding claim 24, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein said voltage is between 50 V and 1000V (col. 12, lines 67 and col. 13, lines 1 and 5-7).

Regarding claim 25, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein said voltage is applied after said chargeable particles have been charged (col. 13, lines 5-9).

Regarding claims 26 and 27, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, further comprising charging powder with a charging electrode and insulating said charging electrode from a voltage source after said powder has been changed (col. 20, lines 52-67).

Regarding claim 28, Yamaguchi et al. discloses, in figures 6 and 8-10, an apparatus for light modulation, wherein said light is modulated during the application of said temporally varied voltage (col. 7, lines 17-26).

Allowable Subject Matter

6. Claims 4, 8, 10, and 11 are allowed.

7. Claims 16-18, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 4, 8, and 10, wherein the claimed invention comprises, in claims 4, 8, and 10, wherein, by means of additional limiting electrodes an area provided by means of control electrodes for forming said granular gas is limited to the exterior, whereby a voltage is applied to said limiting electrodes and/or by means of said limiting electrodes, an electrical field completely surrounding said granular gas is produced such that said electrically charged particles and/or said granular gas are kept in an area between said control electrodes, as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N. Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on 7- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BNT

Alicia M Harrington
Primary Examiner